

NARORA RESERVOIR, U.P.,—A POTENTIAL BIRD SANCTUARY¹

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Northern India receives the major influx of migratory ducks but bird sanctuaries are few in this part of the country. With large-scale draining of jheels and swamps, the ducks now flock to the over-crowded Ghana Bird Sanctuary (Rajasthan), in the newly established Priyadarshani Bird Sanctuary (Uttar Pradesh) and in Sultanpur Bird Sanctuary (Haryana). There are still many swamps and reservoirs which if properly protected, could become ideal refuges for water birds. One such place is near Narora in Uttar Pradesh.

Narora (28° 15'N, 78° 23'E) in Bulandshahr district of Uttar Pradesh is the site of India's fourth atomic power plant. It lies on the main migratory route of the birds of Palaearctic region. Due to damming of the river Ganga, a huge reservoir is formed. During winter and summer, when the water level is low, large number of islands appear in the reservoir which provide safe resting places for the ducks. Moreover, on both sides of the reservoir, many lakes and jheels are present where the aquatic birds feed. Terns, lapwings and Indian skimmer nest during the summer months on the small islands unmolested.

I have surveyed the reservoir, from Narora to Rajghat, a distance of seven kilometres. The reservoir was visited on 16-vii-78, 27-viii-78, 17-xii-78, 6-vi-79, 18-vii-79, 19-viii-79, 23-xii-79, 13-i-80 and 3-ii-80. The area could be roughly divided into the following three zones:

(a) *Riverine zone*: As the reservoir is located in the Ganges, the area provides a typical habitat for all the riverine birds of

northern India. Twenty-five islands, ranging from 1/2 acre to 20 acres, are present from Narora to Rajghat. Except for the one main island which is never submerged, all the remaining islands are transitory and their appearance or disappearance as well as size, depends greatly on the water level of the reservoir. In addition to these elongated islands, innumerable number of small islands also arise when the water level is extremely low.

Human disturbance in the reservoir is minimum, save for the daily water level readings taken by the U.P. Hydel Department, so the birds find a congenial habitat and during winter, hundreds of ducks and waders make their home in this reservoir. Circumstantial evidence suggests that the River tern and the Indian skimmer breed on these islands. The surrounding water around the islands is generally shallow in which spoonbill, painted and black-necked storks, sandpipers, black-winged stilt, curlew, egrets, tufted pochard, shoveller, pintail, gadwall, etc., find food. Bar-headed and grey-lag geese, Brahminy duck and cormorant rest on the sand banks. In deeper parts of the reservoir, tufted pochard, white-eye pochard, shoveller and wigeon are very common. In a five-square kilometre area upto 1,000 were counted on 23-xii-79.

(b) *Marshes and jheels*: To check erosion and siltation, 'bunds' of stone are erected on either side of the elongated reservoir. Near these 'bunds', water which has overflowed in monsoon months, accumulates resulting in marshes and jheels. Teals, pintail, coot, purple moorhen, pheasant-tailed jacana, bronzewinged jacana, painted and blacknecked storks, openbilled stork, sarus crane, spotbill,

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cormorants (large and little), grey heron, dabchick, whitebreasted waterhen, three species of kingfisher and sandpipers are found in these jheels. In the thick reedy beds, ashywren-warbler, red munia and streaked weaverbird were identified.

In the absence of suitable trees, painted stork, spoonbill, cormorants and egrets do not breed in Narora. However, pheasant-tailed jacana, sarus crane, Indian moorhen, coot, Whitebreasted waterhen, dabchick, red munia and streaked weaverbird regularly breed here.

(c) *Open fields*: The marshes gradually graduate into cultivated and uncultivated fields which harbour different species of birds, mostly the common ones. Noteworthy species are: grey and black partridges, quails, whitethroated

munia, stone curlew, blackbellied finch lark, pied bushchat, collared bushchat, and red-start.

Among the birds of prey, the Pallas's fishing eagle is rather common around the jheels, while the blackwinged kite can be seen hovering over grasslands in search of prey. Redheaded merlin, kestrel and tawny eagle were also seen once each.

In addition to the above-mentioned birds, all the birds of the Indian plains and marshes are found in Narora. I have identified 120 species—both resident and migratory. Important ones are listed below. Rare vagrant migrants are the great crested grebe and the common shelduck. Only one specimen of each species was observed.

LIST OF SOME IMPORTANT BIRDS OBSERVED BETWEEN NARORA AND RAJGHAT

(Based on counts in winter)

Species	Year and approximate number			Status
	1978	1979	1980	
1. Barheaded Goose (<i>Anser indicus</i>)	30	45	28	Uncommon
2. Greylag Goose (<i>Anser anser</i>)	—	5	—	Rare
3. Brahminy duck (<i>Tadorna ferruginea</i>)	180	260	196	Common
4. Common shelduck (<i>Tadorna tadorna</i>)	—	1	—	Rare
5. Tufted pochard (<i>Aythya fuligula</i>)	+	+	+	Very Common
6. Wigeon (<i>Anas penelope</i>)	+	+	+	Very Common
7. White-eyed pochard (<i>Aythya nyroca</i>)	+	+	970	Very Common
8. Gadwall (<i>Anas strepera</i>)	+	+	1,700	Very Common
9. Pintail (<i>Anas acuta</i>)	—	+	78	Common
10. Shoveller (<i>Anas clypeata</i>)	+	+	+	Very Common

LIST OF SOME IMPORTANT BIRDS OBSERVED BETWEEN NARORA AND RAJGHAT (Continued)

Species	Year and approximate number			Status
	1978	1979	1980	
11. Combduck (<i>Sarkidiornis melanotos</i>)	—	11	—	Uncommon
12. Spotbill (<i>Anas poecilorhyncha</i>)	28	—	36	Uncommon
13. Spoonbill (<i>Platalea leucorodia</i>)	*	*	76	Common
14. Little cormorant (<i>Phalacrocorax niger</i>)	68	*	80	Common
15. Large cormorant (<i>Phalacrocorax carbo</i>)	—	74	29	Uncommon
16. Darter (<i>Anhinga rufa</i>)	—	38	46	Uncommon
17. Blacknecked stork (<i>Xenorhynchus asiaticus</i>)	—	32	54	Common
18. Painted stork (<i>Ibis leucocephalus</i>)	+	+	+	Common
19. Openbilled stork (<i>Anastomus oscitans</i>)	—	69	34	Common
20. Whitebreasted waterhen (<i>Amaurornis phoenicurus</i>)	+	+	+	Very Common
21. Purple moorhen (<i>Porphyrio porphyrio</i>)	+	+	+	Very Common
22. Coot (<i>Fulica atra</i>)	+	+	+	Very Common
23. Pheasant-tailed jacana (<i>Hydrophasianus chirurgus</i>)	+	+	+	Common
24. Blackwinged stilt (<i>Himantopus himantopus</i>)	+	+	+	Common
25. Avocet (<i>Recurvirostra avosetta</i>)	—	6	15	Uncommon
26. Curlew (<i>Numenius arquata</i>)	—	—	5	Rare
27. Redshank (<i>Tringa totanus</i>)	*	120	156	Common
28. Pallas's fishing eagle (<i>Haliaeetus leucoryphus</i>)	3	*	7	Comparatively common
29. Blackwinged kite (<i>Elanus caeruleus</i>)	—	—	5	Rare
30. Kestrel (<i>Falco tinnunculus</i>)	—	1	—	Rare

— = Not seen
 * = Probably present
 + = Seen but not counted. Very common.

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POTENTIALITIES OF THE NARORA RESERVOIR AS A BIRD SANCTUARY

The main reservoir and the adjoining marshes in Narora have great potentiality for development into a bird sanctuary. Following are some of the reasons which could attract both the birds and the tourists to Narora.

1. The place is well connected by road with Delhi, Bulandshahr, Moradabad, and Aligarh.
2. The Uttar Pradesh Tourism Development Corporation has plans to develop the area into a picnic spot. The Corporation has established a beautiful Gazel Restaurant which provides a panoramic view of the reservoir. Rest houses of the U.P. Hydel Department are easily available for overnight stay. Moreover, due to the fast developing township of workers and engineers of the Narora atomic power plant, hotels and 'dharamshalas' have appeared which provide all the necessary facilities for boarding and lodging. A bird sanctuary will greatly enhance the attraction of the place.

Thus, the infra-structure, which eats up most of the capital of any such project, is already present in Narora, so, expenditure on this account will be small.

3. Due to the deep water and absence of any private motorboat, it is very difficult for hunters to reach the islands, therefore, poaching is minimum. However, engineers in government motorboats sometimes manage to kill a few ducks. Declaring the area into a sanctuary can easily curb this activity. As Narora is a prohibited zone and armed men guard the barrage, outside poachers do not visit the reservoir.

Dr. Sálím Ali, who visited Narora with me in December 1978, called it a 'natural sanctuary'. He suggested to the

official of the U.P. Forest Department and to the Regional Tourist Officer, that 'all efforts should be made to protect this place from destruction.'

4. Fishing is the only commercial exploitation which is allowed in the Narora reservoir. And this activity does least damage to the birds because fishing is mostly done in the deeper parts of the reservoir where the birds generally do not feed. Thus fishermen and birds do not compete with each other. (This needs further confirmation).

Due to transitory nature of the islands, cultivation is not possible on them, except in summer (watermelons is grown on a few big islands). Human pressure on the nearby marshes and jheels is minimum and most of them remain permanently occupied by birds. There is no village on the left side of the reservoir where most of the marshes are present. Thus, acquiring the surrounding land, especially on the left side, for a bird sanctuary would have negligible economic impact on the cultivators.

5. Rajghat and even Narora have religious importance. Thousands of pilgrims come every year to bathe in the Holy Ganga. Most of the temple priests and other inhabitants to whom I talked want this place to be declared a shooting-free zone.
6. Uttar Pradesh does not have any riverine bird sanctuary. The Narora Bird Sanctuary will greatly increase the tourist attraction of the State.
7. Additionally, this reservoir can also become a congenial habitat for the highly endangered gharial (*Gavialis gangeticus*). It has deep pools full of fish and undisturbed sand banks where these reptiles can lay eggs. Four years ago, the fishermen caught a five-foot mugger (*Crocodylus palustris*)

from this reservoir. (This mugger now lives in the Crocodile Rehabilitation Centre in Kukrail near Lucknow). This proves that the habitat for crocodiles in the Narora reservoir has not altered very much and with proper protection these reptiles could be easily re-introduced.

8. India's fourth atomic power plant is fast coming up, three kilometres downward of Narora. This plant will increase the importance of the town.

CONCLUSIONS

All the necessary infra-structure and facilities which are required for a bird sanctuary are already available in Narora. With a minimum expenditure, the Narora reservoir could

additionally become an excellent tourist attraction. In my latest visit (13-ii-80) I found that the population of birds has slightly increased since some restriction was placed on shooting. Decline in flight-distance of the wigeon, shoveller, tufted pochard and brahminy duck also proves that poaching is decreasing. With a little more imaginative planning and necessary protection, the Narora reservoir could become a haven for wildfowl.

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